

**The Institution of Engineers, Australia: Sydney Division  
Engineering Heritage Committee  
ORAL HISTORY PROGRAM**

**INTERVIEWEE: Dr Hugo MESSERLE**

**TAPE NUMBERS: IEA SYD: FH30,  
FH31 & FH32**

**INTERVIEWER: Frank HEIMANS**

**DATE: 21 April 1999**

**NUMBER OF TAPES: 3**

**RESTRICTIONS ON USE: Not to be broadcast without Dr Messerle's permission.  
See Release form for details.**

**LOG PREPARATION: This log was prepared using a Sony TCM-5000 EV cassette recorder**

**INTERVIEW TAPE LOG**

**Tape: IEA SYD: FH30, Side A.**

<b>TAPE COUNTER</b>	<b>SUBJECT</b>	<b>NAMES &amp; KEYWORDS</b>
001	Start of Interview with Dr Messerle and Tape IEA SYD:FH30.	
007	States his date and place of birth (Haifa, Palestine 25 <sup>th</sup> October 1925 in the German Hospital of the German Colony)	Haifa, Palestine 25 October 1925
011	Describes the origins of the German Colony in Palestine, which was set up in 1868 and whose aim was to Christianise the Middle East. Informs that 90% of the German settlers died of malaria in the early days of settlement.	German Colony  Malaria
048	Remarks that the Germans were on good terms with the Arabs and Jews in Palestine at the time he was born and that they introduced the first mechanised farming to Palestine.	

060	Explains that he learnt some Arabic but that the German Colony had its own schools where German was taught and that teachers were brought out from Germany. The Settlement was completely self-supporting and even exported the first Jaffa oranges. Gives a history of the German Colony in Palestine, and of the British presence there in World War I.	
095	Mentions that his father, as a carpenter, had an excellent business relationship with the British administration.	British Administration in Palestine.
103	Recounts that his sister, aged 3, died from an infectious disease (Amoebic Dysentery) the day after he was born.	Sister's death
113	Recalls that when the Second World War broke out in 1939, the British put all the men from the German Colony in gaol. Stayed with his mother until December 1939 when they were taken from Haifa to another German agricultural settlement near Bethlehem, which had been converted to an Internment Camp.	Nazareth Bethlehem Internment Camps
127	Says that his father was allowed to rejoin the family in 1941 at Bethlehem, but in July/August 1942, the British sent the family to Australia.	'Queen Elizabeth' converted to troop carrier.
154	Talks about the voyage from Egypt to Australia and recalls how, after taking a train from Melbourne to Sydney, they had to change trains at Albury because of different gauge rail tracks.	Suez Voyage to Australia
179	Thinks that about 600 or 700 people from the German Colony were sent to Australia, this being the majority of occupants from the German Colonies in Palestine.	

185	Was surprised that Australians imprisoned whole families in the internment camps. Was sent with his family to Camp No. 3 at Tatura, Victoria.	Tatura Internment Camp
202	Describes the Tatura Internment Camp's inmates, which included German Jews and pro-Nazi sympathisers in Camp D, leading to trouble there.	
230	Was accommodated in tents at Tatura Camp, leading to illness and a hospital stay in winter. Describes the living conditions, health care and food in the camps. Helped to set up a school hut in the camp.	
285	Stayed at Tatura until 1943, when all the young German men were taken to Camp 14 near Loveday, S.A. Whilst at Loveday, he completed the Abitur, under the supervision of German teachers. Is grateful for the opportunity to have stayed and studied in Australia, as the alternative would have been deportation to Germany and the possibility of being sent to the Russian Front.	Loveday SA  Abitur (German Higher School Certificate)  German Red Cross
350	At the end of the war, was transferred back to Tatura No: 1 Camp.	
400	End of Tape IEA SYD:FH30 Side A	



Tape: IEA SYD: FH30, Side B.

002	Continuation of interview with Dr Hugo Messerle	
009	Was released from internment on 6 <sup>th</sup> August 1946. His attempts to be repatriated to Palestine failed. Recollects that the former German colonists then applied to stay in Australia and that a special law had to be passed for this to occur, as a peace settlement had not yet been signed between Germany and Australia. Describes the process of being interviewed by a judge. Makes the distinction between being a German and a Nazi and relates that some Germans in the camp were not allowed to stay in Australia.	Arthur Calwell, Minister for Immigration.
052	Found a job in Melbourne as an electrical fitter with Ritter General Electric working on the manufacture of milkshake machines. Found a place for his parents to live and a job for his father.	Ritter General Electric company.  Ferntree Gully
096	Did not again consider returning to Palestine as he and other former German Colonists re-established themselves in Melbourne and set up a retirement home for their aged parents.	
120	As a final footnote to the German Colony in Haifa, mentions that it does not exist any longer, their property having been taken over by the Israeli Government, with compensation paid to the former Colonists.	
139	Enrolled in 1947 in Electrical Engineering at the University of Melbourne and was sent to the university's Mildura campus.	University of Melbourne  Mildura
188	Studied Electrical Engineering, graduating with a Bachelor of Engineering, First Class Honours and received the Dixon Scholarship and an Argus Scholarship.	Dixon Scholarship.  Argus Scholarship

214	Completed a Master of Engineering Degree in Analogue computers in 1952. Describes the workings of analogue computers. Mentions that as part of his Masters Degree, he built a Hydro-Electric Simulator. Used valve amplifiers in his analogue computer, linked to a television screen. The computer produced results from the volumes of water measured. Published a paper on the subject, which won an Electrical Engineering prize from the Institution of Engineers Australia. Stresses that this work was experimental in nature and had no practical applications, but that analogue computers were then the only way to obtain this information.	Master of Engineering Degree  Analogue Computers  Hydro-Electric Simulator.  Valve amplifiers  Prize from Institution of Engineers Australia
308	Believes that he was one of the early users of analogue computers in Australia. Describes how the analogue computer processed data.	
355	Accepted a job offer to work as a Lecturer with Professor Myers at Sydney University in 1952. Gives a background of Professor Myers, who had worked with CSIRO.	Professor Myers, Head of Dept of Electrical Engineering, Sydney University.  Mechanical Differential Analyser  CSIRO
414	End of Tape IEA SYD:FH30 Side B	

Tape: IEA SYD:FH31, Side A.

002	Continuation of interview with Hugo Messerle	
006	Mentions Sir John Madson, who set up the Department of Electrical Engineering at Sydney University before Professor Myers.	Sir John Madson CSIRO
021	Set up an Honours Program in Advanced Mathematical Techniques in Circuit and System Theory at Sydney University. Mentions some students in that course.	John Hooke (son of Sir Lionel Hooke)
038	Talks about his PhD work at Sydney University, using a Mechanical Differential Analyser to study the stability of Synchronous Generators in Power Systems for the Electricity Commission of NSW. Explains the subject of his thesis.	Mechanical Differential Analyser  Electricity Commission of NSW.
071	Discussed in his thesis ways of controlling disturbances in voltage, which made the systems unstable, or resulted in power loss. Introduced feedback controls and discovered the conditions under which the system became unstable. Was able to suppress oscillations by regulating the speed of turbines and feeding in signals that overcame the instability. Proposed the interconnection of turbines, switching them on or off to interact with the load system or other parts of the system.	Control mechanisms for regulating voltage disturbances.
093	Defines what electricity is and how it produces heat or light.	



102	Discusses the Matrice and Tensor Analysis methods to determine the viability of a electrical systems and aid in the analysis of electrical circuits and systems. Says that he introduced this method in Sydney, despite some resistance by 'old-timers' who did not appreciate this new approach. Mentions that in Melbourne, Prof. Moorhouse had already introduced this method into electrical machine theory. Was asked by Professor Myers to introduce and teach a 3-week course on Matrice and Tensor Analysis to students at the University of Sydney.	Matrice and tensor Analysis  Prof Moorhouse
133	Defines what a matrice is and what its function is in Electrical Engineering, and particularly in computer technology. Also defines what Tensors are and what they do.	
165	Considers his work on matrices and tensors to have been ground-breaking work, which led to the publication of his first book on Dynamic Circuit Theory.	Dynamic Circuit Theory
176	Describes the Electro-Mechanical Differential Analyser, an analogue computer, which included mechanical integrators. These had already been used in World War II to increase accuracy in bombing raids.	Electro-Mechanical Differential Analyser  Ball Disc Integrators
200	Confirms that the Electro-Mechanical Differential Analyser was mainly a research tool, but that some work was performed for the Snowy Mountains Authority on the Tumut Diversion Tunnel Project which determined how the water flow would be diverted and what effect that would have on the system.	Snowy Mountains Authority  Tumut Diversion Tunnel Project

211	Mentions other projects where this research was used: an optical project for CSIRO and another for the Department of Supply. Recalls that digital computer technology then emerged and a group was set up at Sydney University's Department of Electrical Engineering to develop this technology. Was involved with this development work and demonstrated that similar work could be carried out on digital computers as on analogue computers. Set up parallel digital computers operating at the same time to speed up calculations and explains this technology.	Dr Piercey CSIRO.  Parallel Digital Computers
251	Recalls that the early digital computers in the mid-1950s were very slow in analysing system problems.	Early digital computers
263	Met his wife Renate in the mid-1950s at a Lutheran Youth Group, part of the Templar Society. Gives some background details of his wife's family.	Templar Society  Renate Messerle
289	Affirms that the subject of his PhD. Thesis was 'The Dynamic Stability of Synchronous Generators'. Explains the function of synchronous power generators in power station operation and his research on the subject.	Synchronous power generators
326	Remarks that his association with Sydney University lasted for 48 years. Became a Senior Lecturer in 1957.	Senior Lecturer in Electrical Engineering.
348	Mentions that Professor Meserve ,a visitor from Cornell University, came for a year to Sydney University and helped him in setting up control experiments and a control laboratory, probably the first in Australia.	Prof. Meserve, Cornell University



365	Applied and received a Fullbright Scholarship to study at Cornell University in 1958 and spent a year in the US. Gave seminars on Power Systems Analysis at Cornell University.	Fullbright Scholarship  Prof Booker, Head of Electrical Engineering Department at Cornell University, US
424	End of Tape IEA SYD:FH31 Side A	

**Tape: IEA SYD:FH31, Side B.**

002	Continuation of interview with Hugo Messerle	
009	Mentions that he also visited other universities and compares the standards of Australian and US universities.	
020	Visited research establishments in the US. Considered staying in the US and taking up a position there, but decided to return home.	General Electric Co, Schenectady, NY  Westinghouse Co. Pittsburgh, US
041	Developed a course in 'Dynamic Circuit Theory' at Sydney University. The course dealt with electrical circuits and moving components.	Dynamic Circuit Theory
054	Received a Readership in Electrical Engineering at Sydney University in 1960.	
064	Explains what 'Direct Energy Conversion' means. Took that project back with him from Cornell University. Set up experiments in the laboratory at Sydney University to extract electricity, using MHD (Magneto Hydro Dynamics). Was elected to an international body of scientists in this field.	Direct Energy Conversion  MHD (Magneto Hydro Dynamic Power Generation).

113	Explains that the aim of his MHD research was to set up MHD power sources to replace existing power station generators. Set up an experimental laboratory in direct energy conversion, using different methods of power generation, including solar, thermo-electric, fuel cells and MHD.	Solar energy  Thermo-electric power generation  MHD power generation
129	States that there were major existing research facilities in the US, Soviet Union and Europe into these fields, but that Sydney University, with restricted resources could not compete with these well-funded bodies. Specifies that the University of Sydney's laboratory did contribute to the theoretical study and analysis of these generators.	
150	Mentions that the US built a large scale Research laboratory in Montana. Admits that the research carried out on MHD was not successful in Australia, but that Japan is now carrying out research, using a new approach, which may eventually prove to be successful.	
161	Reveals that a decision was made not to proceed with the building of a large power station in Australia which was to use MHD technology because of the large investment involved. Says that there is in fact no such power station yet in existence anywhere in the world.	
172	Believes that when nuclear power generation becomes more widely used, MHD power generation could become a reality.	
195	Confirms that he is a Foundation Member of the International Liaison Group on MHD Research. Talks about his involvement with that body.	International Liaison Group on MHD Research.  International Atomic Energy Agency.  UNESCO

213	Set up a Plasma Technology Laboratory in 1962. Explains the connection between Plasma technology and MHD and the place that Plasma Technology holds in Electrical Engineering. This research led him to international work on circuit breakers. Set up a power testing facility using electric storage batteries to store and discharge energy and then interrupted the current to simulate power system faults in the laboratory.	Circuit Breakers  Plasma-Dynamic devices and systems
271	Was invited to join the Current Zero Club, a group of international circuit breakers experts from firms and universities worldwide.	Current Zero Club
275	States that the experimental work carried out in his laboratory on circuit breakers was used to improve electrical power generation performance in Australia.	
291	Explains the role of the Current Zero Club and the basis of its prestige.	John Lowke, Senior Lecturer, Sydney University.
335	Set up the an Industry Advisory Panel whose purpose was to bring in senior executives from the electrical industry to the Department of Electrical Engineering to discuss matters of importance in research and development. Says that it was useful because it provided expert lecturers and formed a bridge to industry. Noticed that the interaction between university and industry has increased since he left the university and that it now operates as the Electrical Engineering Foundation. Talks about its funding by government and private industry, enabling it to set up post-graduate courses of study at members' facilities.	Industry Advisory Panel  Electrical Engineering Foundation.  Telstra
404	End of Tape IEA SYD:FH31 Side B	



**Tape: IEA SYD:FH32, Side A.**

002	Continuation of interview with Hugo Messerle	
005	Was invited and returned to Cornell University in 1964 as a Visiting Professor. Developed a new textbook on the subject of Energy Conversion Statics (a way of measuring all energy conversion processes through Mathematics).	Energy Conversion Statics.
030	Set up an Energy Conversion and Power Testing Laboratory in 1965 at Sydney University. Explains Synthetic Power System testing and its connection with MHD and circuit breakers.	'Synthetic' Power Testing
053	Became Professor of Electrical Engineering at Sydney University in 1966. Gives this as a reason for returning to Australia from Cornell University. Adds that the Department of Electrical Engineering also moved to a new building and was given additional research funds.	Professor in Electrical Engineering
079	Asserts that his work on MHD received international recognition and as a result, was able to travel more widely overseas and meet others in research establishment. Chaired a number of conferences in Sydney to which he brought out experts from around the world.	Academia Sinica, China.  Professor Louis, MIT.
125	Was awarded the Centennial Medal from the Institution of Electrical and Electronic Engineers of America.	IEEE (Institution of Electrical and Electronic Engineers of America).
133	Organised and became Chairman of the World Conference on Engineering Education in 1979 in Sydney.	Dr Pudlowski

160	Explains the challenge of keeping abreast of advances in Engineering education and the increased specialisation at undergraduate program level in Engineering at Sydney University. Regrets that this is happening.	
198	Established and became Chairman of the International Liaison Group on Engineering Education in 1989, which continues to exist but is no longer as active, due to competition from other such bodies in Europe.	International Liaison Group on Engineering Education
222	Compares Australian Engineering methods of education with those of other countries. Thinks that on a post-graduate level, Australia lags behind other countries.	
246	Retired in 1991 from the University of Sydney and was appointed Emeritus Professor. Still has an office in the Department and has an ongoing association with the University. Expresses that his work now is involved with the Australian Academy of Technological Science and Engineering.	Australian Academy of Technological Science and Engineering.
267	Is interested in sustainable development issues, particularly in the field of energy. Is working on some aspects of sustainability, which he hopes will demonstrate the need for restrictions on present day development and use of resources.	Sustainable Development
324	Believes that eventually, solar energy will become feasible for bulk power generation. Suggests that, in the short term, gas-burning power stations would reduce the amount of pollutants caused by burning coal. Also mentions Hydrogen and fuel cells as other solutions on the road to solar energy bulk generation.	Solar Power generation Gas-burning power generation Hydrogen Fuel cell generation
355	Regards wind power generation as being too expensive and unreliable for generating bulk power.	Wind power generation

382	Holds that nuclear power is the only clean energy source that has the capacity for bulk power generation, but that nuclear power should only be a step on the way to full solar power generation.	
411	End of Tape IEA SYD:FH32 Side A	

**Tape: IEA SYD:FH32, Side B.**

002	Continuation of interview with Hugo Messerle	
003	Mentions the Sophia Technica Project, run under the auspices of the Electrical Engineering Foundation, which is concerned with the non-Engineering aspects of Electrical Engineering, such as Philosophy and sustainable development issues and whose aim it is to give Electrical Engineers a broader view of their discipline into social and political areas.	Sophia Technica Project
024	Predicts that this broader view will bring in many aspects that are often ignored, such as the impact on society of inventions and the implications of development and engineering decisions on society.	
040	Believes that these issues are very important to pursue.	
051	Describes his role as Leader of the Sophia Technica Project.	
063	Discusses the religious side of his life and his connection with the Presbyterian and later, Uniting Church. Is involved with continuing education programs for the Uniting Church.	Presbyterian Church Uniting Church.



083	Disagrees with the shift by parts of the Presbyterian Church to a more fundamentalist stance.	
099	Rejects the notion of conflict between Science and Theology. Regards both as dealing with our lives and problems in different ways. Believes that religion gives life meaning and purpose.	
116	Believes that his work at the University has helped to develop programs in Engineering and is of the opinion that his role with the Australian Academy of Technological Science and Engineering is helping to focus attention on the understanding of the need for a sustainable existence on earth.	
128	Is optimistic that mankind will find a way of dealing with a sustainable lifestyle, but is pessimistic of the ability to change people's mindsets away from a fundamentalist stance on population growth. Sees the ever-increasing number of people on the planet as the greatest threat to our existence.	
156	Thinks that the computer has been mankind's most valuable invention and expounds on the benefits that the information revolution is bringing to society.	
200	End of interview with Dr Hugo Messerle and end of Tape IEA SYD:FH32, Side B.	